



ABSTRACT

We have developed a vaccine delivery system based on the non-ionic block copolymer, Pluronic® F127 (F127), combined with selected immunomodulators. F127-based matrices are characterized by a phenomenon known as reverse thermogelation, whereby the formulation undergoes a phase transition from liquid to gel upon reaching physiological temperatures. Protein antigens (tetanus toxoid (TT), diphtheria toxoid (DT) and anthrax recombinant protective antigen (rPA) were formulated with F127 in combination with CpG motifs or chitosan, as examples of immunomodulators, and were compared to more traditional adjuvants in mice.

IgG antibody responses were significantly enhanced by the F127/CpG and F127/chitosan combinations compared to antigens mixed with CpGs or chitosan alone. In addition, the responses were significantly greater than those elicited by aluminum salts. Furthermore, the functional activity of these antibodies was demonstrated using either *in vivo* tetanus toxin challenge or an anthrax lethal toxin neutralization assay. These studies suggest that a block-copolymer approach could enhance the delivery of a variety of clinically useful antigens in vaccination schemes.